

This listing of the claims will replace all prior versions, and listings, of claims in the application:

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**LISTING OF THE CLAIMS**

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Claim 1 (currently amended). A method of recording and printing user data on a printed medium, comprising the steps of:

- a. encoding the user data to form an encoded user data array **A**;
- b. modulating the user data array **A** using a two-dimensional pseudo-random kernel **K<sub>m</sub>**, to form a modulated data array **E**;
- c. formatting the data array **E** to produce a pixel-based two-dimensional barcode array **B**; and
- d. printing the barcode array **B** onto said a portion of the printed medium, wherein the recorded and printed user data is distributed evenly across said portion of the printed medium.

*B1* Claim 2 (currently amended): The method of claim 1, wherein the user data is encoded so that the user data array **A** additionally comprises a fiducial signature.

Claim 3 (original): The method of claim 2, wherein the fiducial signature comprises a recognizable signature texture and a signature pattern.

Claim 4 (currently amended): The method of claim 1, further comprising step (e) superimposing onto the barcode array **B** a formatted version of a two-dimensional signature array **C**.

*7* Claim 5 (currently amended): The method of claim 4, wherein in step (a), the user data is encoded so as to have a signature texture incorporated therein, and further wherein the signature array **C** contains a signature pattern bitmap modulated using a two-dimensional pseudo-random kernel **K<sub>c</sub>**.

Claim 6 (original): The method of claim 5, wherein the two-dimensional kernels **K<sub>m</sub>** and **K<sub>c</sub>** are the same.

Claim 7 (currently amended): The method of claim 4, wherein the signature array **C** comprises a signature texture array modulated using a two-dimensional pseudo-random kernel  $K_c$ .

Claim 8 (currently amended): The method of claim 4, wherein in step (a) the user data is encoded so as to have a signature pattern incorporated therein, and further wherein, the signature array **C** contains a signature texture modulated using a two-dimensional pseudo-random kernel  $K_c$ .

Claim 9 (currently amended). The method of claim 98, wherein the two-dimensional pseudo-random kernels  $K_c$  and  $K_m$  are the same.

*B1  
Cm.*  
Claim 10 (currently amended): The method of claim 1, further comprising in combination with step (c) formatting and superimposing onto the formatted data array **E** a second two-dimensional modulated data array **E'**, wherein the data array **E'** is produced by modulating a second data set with a second two-dimensional pseudo-random kernel,  $K'_m$  and the barcode array **B** is produced by the superimposition of the formatted data array **E'** onto the formatted data array **E**.

Claim 11 (original): A readable barcode made using the method of claim 1.

Claim 12 (original): A readable barcode made using the method of claim 2.

Claim 13 (original): A readable barcode made using the method of claim 4.

Claim 14 (original): The readable barcode of claim 13, wherein up to approximately 80% of the barcode has been obfuscated.

Claim 15 (original): The readable barcode of claim 14, wherein the obfuscation is caused by overlaid text or graphics.

Claim 16 (original): The readable barcode of claim 14, wherein the obfuscation is caused by damage or partial destruction of the printed medium.

Claim 17 (currently amended): A method of reading user data stored on a printed medium according to the method of claim 1, comprising;

- a. scanning the barcode array **B** to obtain the data array **E**;
- b. demodulating the data array **E** with a two-dimensional pseudo-random kernel  $K_d$  that is related to the two-dimensional pseudo-random kernel  $K_m$ , to obtain the user data array **A**; and
- c. decoding the user data array **A** to obtain the encoded user data.

Claim 18 (currently amended): A method of reading user data stored on a printed medium according to the method of claim 2, comprising;

- B1*  
*cont*
- a. scanning the barcode array **B** to obtain an uncorrected version of data array **E**;
  - b. demodulating the data array **E** with a two-dimensional pseudo-random kernel  $K_d$  that is related to the two-dimensional pseudo-random kernel  $K_m$ , to obtain an uncorrected version of the user data array **A**;
  - c. transforming the uncorrected version of the user data array **A** using the fiducial signature contained therein to produce a corrected version of the user data array **A**; and
  - d. decoding the corrected version of the user data array **A** to obtain the encoded user data.

Claim 19 (currently amended): A method of reading user data stored on a printed medium according to the method of claim 4, comprising;

- a. scanning the barcode array **B** to obtain a raw scan;
- b. demodulating the raw scan with a two-dimensional pseudo-random kernel  $K_c$  that is not related to the two-dimensional pseudo-random kernel  $K_m$ , to obtain an uncorrected version of the signature array **C**;
- c. transforming the raw scan using the uncorrected version of signature array **C** to obtain a corrected version of data array **E**;
- d. demodulating the corrected version of data array **E** with a two-dimensional pseudo-random kernel  $K_d$  that is related to the two-dimensional pseudo-random kernel  $K_m$ , to produce a corrected version of the user data array **A**; and
- e.e. decoding the corrected version of user data array **A** to obtain the encoded user data.

Claim 20 (currently amended): The method of claim 19, wherein steps (a) through (c) are performed iteratively on subsections of the barcode array **B** and the signature array **C** contains a signature texture and a signature pattern.

Claim 21 (currently amended): A method of reading user data stored on the barcode of claim 14 comprising the steps of

- El. 21*
- a. scanning the barcode array **B** to obtain a raw scan;
  - b. thresholding the raw scan;
  - c. demodulating the thresholded raw scan with a two-dimensional pseudo-random kernel  $K_c$  that is not related to the two-dimensional pseudo-random kernel  $K_m$ , to obtain an uncorrected version of the signature array **C**;
  - d. transforming the raw scan using the uncorrected version of the signature array **C** to obtain a corrected version of the data array **E**;
  - e. demodulating the corrected version of the data array **E** with a two-dimensional pseudo-random kernel  $K_d$  that is related to the two-dimensional pseudo-random kernel  $K_m$  but not related to the two-dimensional pseudo-random kernel  $K_c$ , producing a corrected version of the user data array **A**; and
  - e.f. decoding the corrected version of the user data array **A** to obtain the encoded user data.

Claim 22 (currently amended): The method of claim 21, further comprising iteratively repeating step (c) on subsections of the barcode array **B** and the signature array **C** contains a signature texture and a signature pattern.

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**AMENDMENTS TO THE DRAWINGS**

The four (4) attached sheets contain corrections to FIGS. 1-3 of the drawings and will replace all prior versions of the same.